



(1) **EU-TYPE EXAMINATION CERTIFICATE**
(Translation)

(2) Equipment or Protective Systems Intended for Use in
Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 11 ATEX 1014 X

Issue: 01

(4) Product: Electro-pneumatic position controller, type 3731-21..

(5) Manufacturer: SAMSON AG Mess- und Regeltechnik

(6) Address: Weismüllerstr. 3, 60314 Frankfurt, Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the confidential Test Report PTB Ex 19-18133.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-7:2015
EN 60079-11:2012 EN 60079-31:2014

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

(12) The marking of the product shall include the following:



II 2 G Ex db IIC T6 Gb resp. II 2 G Ex db eb IIC T6 Gb resp.



II 2 G Ex db [ia Ga] IIC T6 Gb resp. II 2 G Ex ia IIC T6 Ga and



II 2 D Ex tb IIC T80 °C Db

Konformitätsbewertungsstelle, Sektor Explosionsschutz

Braunschweig, April 8, 2019

On behalf of PTB:

D. Markus

Dr.-Ing. D. Markus
Direktor und Professor



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EU-Type Examination Certificates without signature and official stamp shall not be valid. The certificates may be circulated only without alteration. Extracts or alterations are subject to approval by the Physikalisch-Technische Bundesanstalt. In case of dispute, the German text shall prevail.

(13)

SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 11 ATEX 1014 X, Issue: 01**

(15) Description of Product

The electro-pneumatic position controller, type 3731-*2x (stainless steel=2), is a single- / double-action position controller with communication capabilities, which can be attached to any commercially available lift or part-turn actuator. The position controller compares the output signal of a control unit within the 4 - 20 mA region with the lift of the control valve and adjusts the pneumatic actuating pressure as an output parameter. The position controller is configured and parameterised with a HART protocol, using the signal line of the 4 - 20 mA signal (version 3731-321). Data are transmitted with a superimposed frequency via the 4 - 20 mA signal cables. The 3731-42x and 3731-52x versions are intended for connection to fieldbus systems corresponding to Profibus PA, as well as in accordance with the FOUNDATION™ Fieldbus specification acc. to the FISCO concept.

For field application the apparatuses are installed in a metal enclosure of Ex "d" or Ex "d e" types of protection.

Additionally, the electro-pneumatic positioners of types 3731-421-.....4 and 3731-521-.....4 are designed to type of protection Intrinsic Safety Ex ia. Communication is carried out alternatively according to PROFIBUS PA (type 3731-4.) or FOUNDATION Fieldbus specification (type 3731-5.) acc. to the FISCO-concept.

Types 3731-.2103 / binary input and 3731-.2104 forced breathing are introduced as an option.

The electrical data, shown summarized, are as follows:

Electrical data

Supply voltage:	10 ... 35 V DC, $U_m = 60$ V
Signal circuit:	4 ... 20 mA
Power dissipation:	max. 7.5 W

or

BUS-connection signal circuittype of protection Ex ia IIC/IIB

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For relationship between type of protection and the permissible electrical data reference is made to the following tables.

Type 3731-421.....4

PROFIBUS PA		
Ex ia IIC/IIB		
U_i	=	17.5 V DC
I_i	=	380 mA
P_i	=	5.32 W

or

Type 3731-521.....4

Foundation™ Fieldbus			
Ex ia IIC		Ex ia IIB	
U_i	= 24 V DC	U_i	= 24 V DC
I_i	= 380 mA	I_i	= 380 mA
P_i	= 1.04 W	P_i	= 2.58 W

C_i = 5 nF
 L_i = 10 µH

Note: Only one of the following options will be applied in each case.

Option Forced Breathing.....type of protection Ex ia IIC/IIB
(terminals A, B) only for connection to a certified intrinsically safe circuit

Maximum values:

U_i = 28 V
 I_i = 115 mA

or

U_i = 32 V
 I_i = 87.6 mA
 C_i = 7.26 nF
 L_i negligibly low

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Option Binary Input.....type of protection Ex ia IIC/IIB
 (terminals A, B, C) only for connection to a certified intrinsically safe circuit

Maximum values:

$U_i = 25 \text{ V}$
 $I_i = 150 \text{ mA}$
 $C_i = 110 \text{ nF}$
 L_i negligibly low

Changes with respect to further issues

1. Adaptation to the standard issues, mentioned on the cover sheet.
2. In addition to the hitherto used enclosure material Aluminium EN AC-44300DF, in the future may be also used Stainless steel 1.4408 for the electronics compartment and Stainless steel 1.4409 for the terminal compartment.
3. Various design and production-orientated changes to ensure an increased mechanical stability of the enclosure elements.

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(17) Specific conditions of use

Repairs on flameproof joints may only be performed in accordance with the manufacturer's design specifications. Repair on the basis of the values in table 3 of EN 60079-1:2014 resp. IEC 60079-1:2014 is not permitted.

Additional notes for safe operation:

Connection conditions

1. When the terminal compartment of the electro-pneumatic position controller, type 3731-*21, 3731-*22, is designed to Ex-"d" type of protection, the following must be complied with:
 - The device shall be connected with suitable cable glands or conduit systems that meet the requirements stipulated in EN 60079-1, sections 13.1 and 13.2, and for which a separate test certificate has been issued. If the device is connected to conduit systems, the required sealing device shall be provided immediately at the enclosure.
 - Cable glands (Pg type glands) and blanking plugs of a simple design must not be used.
 - Openings that are not used shall be sealed in compliance with the specifications in EN 60079-1, section 11.9.
 - If connection is made in the potentially explosive area, the connecting cable (unconnected cable end) of the electro-pneumatic position controller, type 3731-*21, 3731-*22, shall be connected in an enclosure that meets the requirements of an approved type of protection in accordance with EN 60079-0, section 1.
2. The connecting cable of the electro-pneumatic position controller, type 3731-*21, 3731-*22, shall be fixed and routed so that it will be adequately protected against mechanical damage.
3. If the temperature at the input parts exceeds 70 °C, temperature-resistant connecting cables shall be used.

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4. The electro-pneumatic position controller, type 3731-*21, 3731-*22, shall be included in the local equipotential bonding system of the potentially explosive area.
5. The design version type 3731-.22 (stainless steel) is not allowed for the type of protection Ex de, Ex d [ia] and Ex ia.
6. The design version type 3731-.22 shall only be used in the type of protection Ex db according to EN 60079-1.

These notes and instructions shall accompany each device in an adequate form.

Components attached or installed (terminal compartments, bushings, Ex-type cable glands, connectors) shall be of a technical standard that complies as a minimum with the specifications on the cover sheet, and they shall have a separate examination certificate. The operating conditions specified in the component certificates must be complied with.

Ambient temperature

The field of application of the electro-pneumatic position controller, type 3731-*21, 3731-*22, is as follows:

in temperature class T6: to ambient temperatures between -40 °C and +60 °C,
in temperature class T5: to ambient temperatures between -40 °C and +70 °C, and
in temperature class T4: to ambient temperatures between -40 °C and +80 °C.

Operating medium in the pneumatic section

1. The maximum ingoing-air pressure is 6 bar.
2. The equipment operator must ensure that the operating medium does not form an explosive atmosphere, i.e. the gases used must not contain any substances whose presence in the medium may cause an explosive atmosphere (no flammable gases, no oxygen or oxygen-enriched gas).


(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz
On behalf of PTB:

Braunschweig, April 8, 2019


Dr.-Ing. D. Markus
Direktor und Professor



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